REMARKS

Introduction

Upon entry of the foregoing amendment, claims 1-6 and 8-31 are pending in the application. Claims 1, 4, 6, 8, and 31 have been amended. No new matter is being presented. In view of the following remarks, reconsideration and allowance of all the pending claims are requested.

Rejection under 35 USC § 103

Claims 1-6 and 8-31 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter "AAPA") in view of U.S. Patent No. 7,006,068 to Haga. Applicant requests reconsideration and withdrawal of this rejection for at least the following reasons.

On page 2, lines 11-23 of the Office Action dated June 30, 2008, the Examiner alleges that AAPA teaches all of the limitations of independent claim 1, except "a transient time extending part comprising at least two time extending elements to extend the received signal from the buffer by a transient time of the output potential level of the signal during which the potential level of the signal inputted from the level converter to the switching unit is converted from a first signal level to a second signal level and vice versa." *See* also page 5, line 19 of the Office Action dated June 30, 2008. To remedy the deficiencies of AAPA, the Examiner relies on FIG. 9, and column 18, lines 31-61 of Haga as allegedly teaching "a level shift unit having a level converter to convert a potential level of a signal input therein into a predetermined potential level to drive the switching unit, a buffer to output the signal having the converted level, and a transient time extending part comprising at least two time extending elements to extend the received signal from the buffer by a transient time of the output potential level of the signal during which the potential level of the signal inputted from the level converter to the switching unit is converted from a first signal level to a second signal level and vice versa." *See* page 12, lines 14-19 of the Office Action dated June 30, 2008. However, Haga does not teach or suggest

the limitations lacking in AAPA regarding independent claim 1 as presently recited, for at least the following reasons.

Referring to FIG. 9, and column 18, lines 31-61 of Haga, as relied upon by the Examiner, it is clear that Haga is limited to a sampling level converter circuit (including MOS transistors MN1, MN2, MN3, and MP1, and capacitors C1 and C2), which is connected to a two-stage CMOS inverter circuit (including MOS transistors MP2, MP3, MN4, MN5, MP4, and MN6). *See* edited FIG. 9 of Haga below.

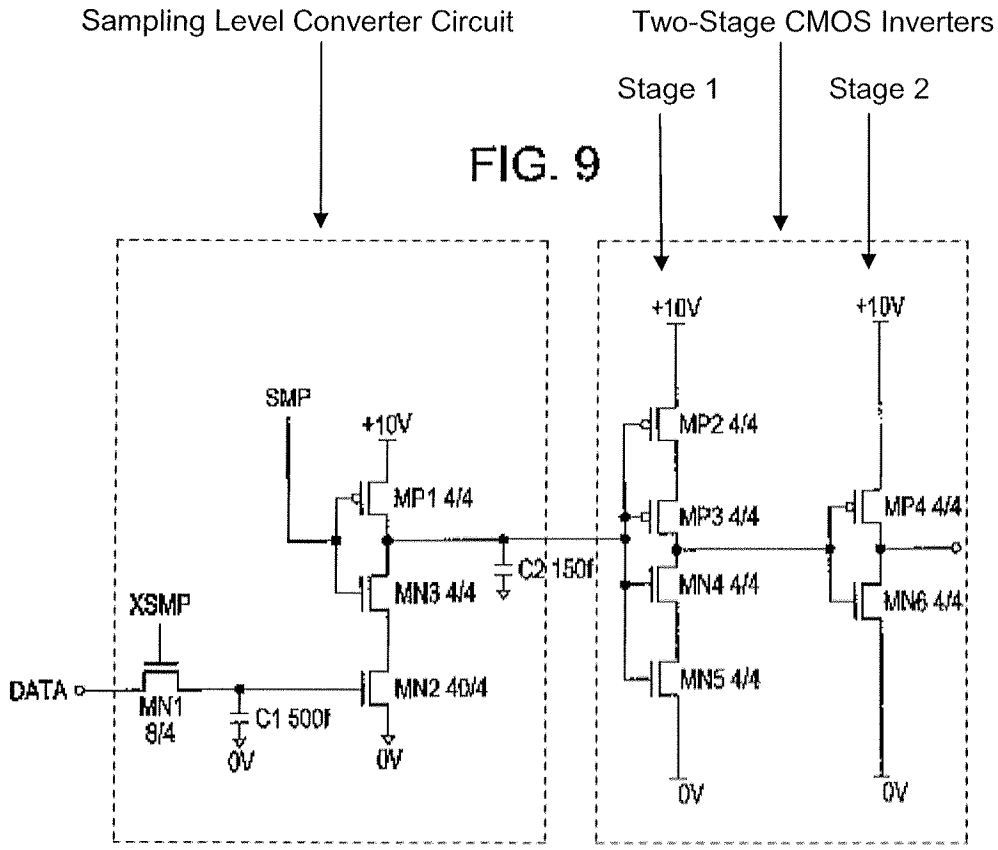


FIG. 9

In other words, the Stage 1 inverter of Haga is connected to an output of the sampling level converter circuit of Haga, and receives a terminal voltage of capacitor C2. In this configuration, Haga is designed to reduce a short-circuit current (from a high potential power supply to a low potential power supply) of the Stage 1 inverter. *See* column 18, lines 39-50 of Haga. However, as stated above, Haga's Stage 1 inverter receives an output directly from the sampling level converter circuit, which is not the same as "a second inverter including at least two time

extending elements to extend the inverted signal output from the first inverter by a transient time of the output potential level of the signal input from the level converter to the switching unit during which the potential level of the signal input from the level converter to the switching unit is converted from a first signal level to a second signal level and vice versa," as presently recited in independent claim 1 of Applicant's invention. More specifically, since Haga does not include "a first inverter to invert the signal output from the level converter," also as presently recited in independent claim 1 of Applicant's invention, the output of the sampling level converter circuit of Haga is not inverted before being input to the Stage 1 inverter. Therefore, referencing column 18, lines 44-48 of Haga, it is clear that Haga merely increases a time required to discharge an electrical charge that has been accumulated in pre-charged capacitor C2, and does not extend an inverted signal output from a first inverter by a transient time of an output potential level of a signal input from Haga's sampling level converter circuit. Accordingly, Haga does not remedy the deficiencies of AAPA regarding "a transient time extending part" as presently recited in independent claim 1.

Hence, it is respectfully submitted that Haga and AAPA, alone or in combination, do not teach or suggest, among other things, "a transient time extending part comprising a first inverter to invert the signal output from the level converter, and a second inverter including at least two time extending elements to extend the inverted signal output from the first inverter by a transient time of the output potential level of the signal input from the level converter to the switching unit during which the potential level of the signal input from the level converter to the switching unit is converted from a first signal level to a second signal level and vice versa," as presently recited in independent claim 1 of Applicant's invention.

Furthermore, there would be no motivation to combine Haga and AAPA, for at least the reason that doing so would destroy the purpose and functionality of Haga. For example, as stated above, Haga is designed to reduce a short-circuit current of the Stage 1 inverter. *See* column 18, lines 39-50 of Haga. Therefore, if AAPA were combined with Haga to include an inverter between Haga's sampling level converter circuit and the Stage 1 converter, Haga's Stage 1 converter would not receive the appropriate output (as it would now be inverted), and the improper input into the Stage 1 inverter would result in an improper output from the Stage 1.

Since it has been shown above that Haga does not remedy the deficiencies of AAPA regarding independent claim 1, there would be no motivation to combine Haga and AAPA, and that combining Haga and AAPA would not successfully teach the limitations as recited in independent claim 1, Applicant respectfully submits that the Examiner has not met the burden of establishing a prima facie case of obviousness as set forth in MPEP § 2142, portions of which are cited as follows: "The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the examiner does not produce a prima facie case, the applicant is under no obligation to submit evidence of nonobviousness ...To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)."

As set forth in the discussion of independent claim 1 (above), since AAPA and Haga, separately or in combination, do not teach or suggest all of the elements as recited in independent claim 1, these documents cannot be properly used to reject this claim under 35 U.S.C. §103(a) as submitted in the Office action mailed on June 30, 2008, and withdrawal of this rejection and allowance of this claim are respectfully solicited.

Independent Claims 6 and 8

Similar to above regarding independent claim 1, on pages 13-14 of the Office Action dated June 30, 2008, the Examiner admits that AAPA does not teach all of the elements as recited in independent claims 6 and 8, and relies on Haga to remedy the deficiencies of AAPA. However, Haga does not teach or suggest the limitations lacking in AAPA regarding independent claims 6 and 8 as presently recited, for at least the following reasons.

As stated above regarding independent claim 1, Haga is limited to a sampling level converter circuit (including MOS transistors MN1, MN2, MN3, and MP1, and capacitors C1 and C2), which is connected to a two-stage CMOS inverter circuit (including MOS transistors MP2, MP3, MN4, MN5, MP4, and MN6) . In other words, Haga is designed to reduce a short-circuit current of a Stage 1 inverter (as illustrated in edited FIG. 9 above). *See* column 18, lines 39-50

of Haga. However, as stated above, Haga's Stage 1 inverter receives an output directly from the sampling level converter circuit, which is not the same as "inverting the input signal having the converted level, extending a first transient time of the output level of the inverted signal by a predetermined time in accordance with an output signal generating when the level of the inputted signal is converted, the transient time being a time period during which the level is converted from a first signal level to a second signal level, and extending a second transient time of the output level of the inverted signal by another predetermined time in accordance with an output signal generating when the level of the inputted signal is converted, the transient time being a time period during which the level is converted from the second signal level to the first signal level," and "a level shift unit including an inverter to invert the control nozzle selection signal, a first portion to generate a first nozzle selection signal having a first transient time, during which a level of the first nozzle selection signal is changed between first and second levels, in response to the inverted control nozzle selection signal, and a second portion to generate a second nozzle selection signal having a second transient time extended by a period from the first transient time of the first nozzle selection signal" as presently recited in independent claims 6 and 8 of Applicant's invention.

In other words, Haga does not include first invert the signal output from the sampling level converter circuit before being input to the Stage 1 inverter. Therefore, referencing column 18, lines 44-48 of Haga, it is clear that Haga merely increases a time required to discharge an electrical charge that has been accumulated in pre-charged capacitor C2, and does not extend an inverted signal output from a first inverter by a transient time of an output potential level of a signal input from Haga's sampling level converter circuit. Accordingly, Haga does not remedy the deficiencies of AAPA.

Hence, it is respectfully submitted that Haga and AAPA, alone or in combination, do not teach or suggest, among other things, "inverting the input signal having the converted level, extending a first transient time of the output level of the inverted signal by a predetermined time in accordance with an output signal generating when the level of the inputted signal is converted, the transient time being a time period during which the level is converted from a first signal level to a second signal level, and extending a second transient time of the output level of the inverted signal by another predetermined time in accordance with an output signal

generating when the level of the inputted signal is converted, the transient time being a time period during which the level is converted from the second signal level to the first signal level," and "a level shift unit including an inverter to invert the control nozzle selection signal, a first portion to generate a first nozzle selection signal having a first transient time, during which a level of the first nozzle selection signal is changed between first and second levels, in response to the inverted control nozzle selection signal, and a second portion to generate a second nozzle selection signal having a second transient time extended by a period from the first transient time of the first nozzle selection signal," as presently recited in independent claims 6 and 8 of Applicant's invention.

Furthermore, as stated above regarding independent claim 1, there would be no motivation to combine Haga and AAPA, for at least the reason that doing so would destroy the purpose and functionality of Haga. In detail, as stated above, Haga is designed to reduce a short-circuit current of the Stage 1 inverter. *See* column 18, lines 39-50 of Haga. Therefore, if AAPA were combined with Haga to include an inverter between Haga's sampling level converter circuit and the Stage 1 converter, Haga's Stage 1 converter would not receive the appropriate output (as it would now be inverted), and the improper input into the Stage 1 inverter would result in an improper output from the Stage 1.

As set forth in the discussion of independent claims 6 and 8 (above), since AAPA and Haga, separately or in combination, do not teach or suggest all of the elements as recited in independent claims 6 and 8, these documents cannot be properly used to reject these claims under 35 U.S.C. §103(a) as submitted in the Office action mailed on June 30, 2008, and withdrawal of this rejection and allowance of these claims are respectfully solicited.

Independent Claim 31

On page 5, lines 9-18 of the Office Action dated June 30, 2008, the Examiner alleges that AAPA teaches all of the limitations of independent claim 1. In detail, the Examiner alleges that AAPA discloses "one or more logic units to increase a time required to change the output nozzle selection signal between the logic high and the logic low." *See* page 5, lines 14-16 of the Office Action dated June 30, 2008. However, the Examiner appears to have overlooked the amendments to independent claim 31 from the Amendment After Final Rejection dated July 6, 2007, because independent claim 31 now recited "first and second logic units," not "one or more

logic units." Therefore, referring to FIG. 2 of AAPA, it is clear that AAPA does not include "first and second logic units to increase a time required to change the nozzle selection signal between the logic high and the logic low," but is limited to merely to a single inverter 2.

Furthermore, Applicant asserts that AAPA also does not teach or suggest, among other things, "a level shift unit to convert the nozzle selection signal to have a predetermined level to drive the heating element between a logic high and a logic low, and having an inverter to invert the converted nozzle selection signal, and first and second logic units to increase a time required to change the inverted nozzle selection signal between the logic high and the logic low," as presently recited in independent claim 31, for at least the reasons above regarding independent claims 1, 6, and 8.

Accordingly, withdrawal of this rejection and allowance of this claim are earnestly solicited.

Dependent Claim 2-5 and 9-30

With respect to claims 2-5 and 9-30, it is respectfully submitted that for at least the reason that claims 2-5 and 9-30 depend from independent claims 1 and 8 which are patentably distinguishable from AAPA and Haga for at least the reasons provided above, and therefore contain each of the features as recited in independent claims 1 and 8, dependent claims 2-5 and 9-30 are also patentably distinguishable from AAPA and Haga, and withdrawal of this rejection and allowance of these claims are respectfully solicited.

Conclusion

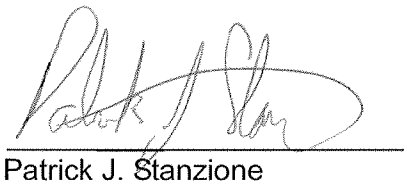
It is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, there being no other objections or rejections, this application is in condition for allowance, and a notice to this effect is earnestly solicited.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided below.

If any further fees are required in connection with the filing of this amendment, please charge the same to our Deposit Account No. 502827.

Respectfully submitted,

STANZIONE & KIM, LLP



Dated: September 19, 2008

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